

Baruch (S.)

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TEFIORE HOME FOR CHRONIC INVALIDS, NEW YORK.



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## CONDITIONS INDICATING CHANGE OF AIR AND BATHS IN THE SUMMER DIARRHEA OF CHILDREN.<sup>1</sup>

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THE removal of the causes of disease being the chief aim of modern therapy, the unsanitary conditions that actively contribute to the development and maintenance of the summer diarrhea of children constitute an important element in the prophylaxis.

*Change of Air*—does not, as is sometimes erroneously supposed, improve the condition of the sick child by reason of any special difference in the proportions of oxygen or other chemic constituent. The chief factors that warrant us in advising change of air are (1) high temperature and marked humidity, or both; (2) the presence of impurities.

The pronounced influence of high atmospheric temperature and extreme humidity in the causation and maintenance of summer diarrhea in children has long been observed. Whenever, therefore, the usual treatment seems unavailing, especially when

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<sup>1</sup> Read before the Pediatric Section of the New York Academy of Medicine, May 12, 1892.

extreme prostration, with or without febrile exacerbations, becomes an element in a case of summer diarrhea, the question of change of air becomes important. Of what avail are stimulants, tonics and food, when the little sufferer is forced to toss under the constant, relentless systemic oppression produced by a stifling atmosphere, especially if aggravated by an excess of moisture, from which there is no escape, even by the most careful ventilation. Rich and poor are alike crushed under this terrible combination; for even in the open parks of the city it operates in full force. Removal by a rapid and comfortable journey to high altitudes or seaside, sufficiently remote to furnish a complete change from one or both of these prejudicial atmospheric conditions, becomes imperative in many cases. The change in the entire aspect of a case of summer diarrhea under such favoring conditions has been so often observed that I need not emphasize its importance.

The existence of atmospheric impurities demands removal of the little patient. This is so trite an observation that it would be absurd to dwell upon it, were it not so frequently disregarded. To the credit of the medical profession be it said that its disregard is chiefly chargeable to circumstances over which it has no control.

Among the well-to-do classes atmospheric impurities are rarely operative in summer. While imperfect ventilation frequently breeds such impurities in winter, even in the best-appointed dwellings, the advent of summer forces the occupants to open doors and windows for their comfort and con-

venience. Unless, therefore, the residence lies in a narrow or overcrowded street, or in one of those elegant but cramped apartments which are really but gilded tenements, change of air will rarely be required in this class of patients.

How different is it among the poor, who are always with us, and to aid and relieve whom is the highest and noblest privilege of civilized man. The noisome tenements in which the children of the poor, and many even of the better class of working-people, are huddled together, are excellent places for the culture and propagation of the elements that contribute to the development and maintenance of summer diarrhea in children. The chief aim in the treatment of the latter is now recognized to be clean food taken into a clean stomach, and its detritus removed as far as possible through a clean intestinal tract. The difficulty of meeting these indications in apartments abounding in dust and emanations from numerous human beings crowded together need but be referred to here. Hence, removal from the influence of this prominent etiologic factor becomes imperative, not for the purpose of securing, as was formerly held, air containing more oxygen, but with a view of having the patient surrounded by air containing less filth and its accompanying bacteria.

How to furnish these poor people with the means of obtaining so important a curative agent as change of air has long been a problem. Fortunately, charitable people have gone earnestly to work to solve it. It is a singular coincidence that just at the moment when these lines were penned, the mail

brought me the program of an entertainment to be given for the benefit of one of these charitable enterprises, the St. John's Guild, which has built seaside hospitals, and furnishes thousands of sick children an opportunity to escape for a day or longer from the depressing influence of impure air, besides giving them good food and medicines. To the poor, whose children require it, this change from a filth-laden atmosphere to the pure breezes of a harbor comes as a refreshing and vivifying blessing that cannot be over-estimated. Such recognition of the value of change of air in the treatment of the summer diarrhea of the children of the poor offers a more convincing argument than aught I can bring forward to establish it.

It behooves us, therefore, to further a charity the object of which is so laudable and practically beneficent.

There is one point in connection with change of air as a remedy that requires special emphasis. While, for reasons already mentioned, a change is imperative in almost all cases of summer diarrhea of the children residing in crowded tenement-houses, it is not so important in those cases whose environment is more favorable for home-treatment. Indeed, the change from a comfortable home to a country hotel, which is apt to be overcrowded, is not to be advised without careful reflection. It is not an infrequent occurrence to order a sick child away when the symptoms become alarming, without time for preparation or due inquiry. The consequences are discomfort from immaturity of plans, great expense, disturbance of the family, and con-

sequent anxiety and unhappiness for the parents and friends.

Do the benefits to accrue to the little patients warrant these? The advantages and disadvantages of removal should be well weighed ere a change of air is decided upon; but, above all things, we must be satisfied that we have exhausted all other treatment. As I have said already, careful attention to sterilization of the food and to intestinal irrigation are of far greater importance than change of air. *We should be sure that these have been fairly tried before advising the change.* This statement is made as the result of practical observations at a noted summer resort, where I see many such cases every summer. To illustrate: In the summer of 1890 I was asked by Dr. Alfred Meyer, who was ill, to see for him a wizen-faced infant whose mother, being poor, had, at great sacrifice, brought it to a third-rate hotel at Long Branch for change of air as a last resort. The child had not improved, simply because its food was not proper and its intestinal canal had not been flushed. One dose of castor oil, followed by two intestinal irrigations and the use of sterilized milk, obtained by converting her medicine bottles and saucepan into a sterilizer, brought about a rapid recovery, enhanced by the constant exposure of the infant to the pure, ozone-laden air. Last summer I was called to the Long Branch home of the Babies' Shelter of New York to see two children whose diarrhea had not improved under the best dietetic and medicinal care in the city and after several weeks' residence in the country. A few intestinal irrigations sufficed to make a complete

change in these cases, and contributed more to their recovery than change of air had done. The lesson from such cases is evident. While all cases of summer diarrhea of infants living in crowded houses demand change of air, other treatment is at least equally important. Among the better-situated, change of air need not be insisted upon until all approved methods of treatment have been fairly tried.

*Conditions indicating Baths.*—In the brief time at my disposal, the discussion of this subject must be cursory. Baths for cleanliness are always demanded in summer diarrhea, not only because the frequent soiling renders them more necessary, but because the maintenance of the functions of the skin seems to relieve internal congestion and fluxion.

In acute cholera infantum, baths for therapeutic purposes are of paramount importance, affording more positive relief and contributing more to the cure than all other measures. This form of summer diarrhea has by some not inaptly been regarded as a type of heat-stroke. Certain it is that if the temperature is taken in the rectum, it will almost always be found high; not infrequently there is hyperpyrexia, though the skin of the extremities and face be cool and clammy. Whenever the temperature exceeds  $102^{\circ}$  F., a cooling procedure is indicated. It is important that the proper method of bathing should be adopted, and that its *rationale* be well understood.

In these cases there is usually profound involvement of the nervous system, frequently manifested by a dull, apathetic countenance, sunken eyes,

deadly pallor, cool extremities, not rarely terminating in outspoken eclamptic seizures. Medicines and stimulants are useless, because the stomach and rectum do not tolerate them. Such a child should be put at full length into a tub of water at  $90^{\circ}$ , after its face and head have been bathed with ice-water; gentle friction should be constantly made, while someone is removing with a pitcher the tepid water and replacing it by ice-water poured over the side of the tub farthest from the patient's body. The temperature of the bath is thus gradually lowered to  $80^{\circ}$ . If there be marked cerebral disturbance, water at  $60^{\circ}$  may be poured upon the head and shoulders. The child's body must be entirely submerged, the head only not being immersed. Its cries and protestations of chilliness must be met with gentleness, yet with firmness. For fifteen minutes the agitation of the water and friction of the body should be kept up, unless cyanosis of the face or decided shivering ensues. The latter will be prevented by active friction, which stimulates the peripheral circulation.

After the bath the child is placed upon a linen sheet, previously laid smoothly upon a blanket. If the temperature before the bath—and it should always be taken at this time—has been  $103.5^{\circ}$  or higher, the child should be wrapped in the sheet so that every part of the body and extremities is well covered by it; the blanket is now snugly wrapped over and tucked under the body, which is thus allowed to dry. If, on the contrary, the temperature has been below  $103.5^{\circ}$ , the child should be gently mopped dry and its clothing be replaced at once.

Such a bath is almost invariably followed by calm and refreshing slumber, from which the child awakens bright and playful.

Let it be understood that the object of this bath is not to reduce temperature, although this is an important incidental result. We have here a vaso-motor paralysis, as evidenced by the pallor of the entire body, even when a high temperature is registered in the rectum. By immersing the entire body in tepid water we produce a mild shock, which is gradually increased by the removal of warm and the addition of cold water, and is enhanced by frictions of the body and constant agitation of the cooling water against the skin. These gentle shocks are succeeded by equally gentle reactions, so that the cutaneous vessels dilate, as evidenced by redness of the skin. If, in addition, the face and head are bathed with a little colder water, at  $60^{\circ}$ , the shock and reaction are increased, the respiration deepens, the heart beats with more vigor and less rapidity, the eye brightens, the color returns to the lips, the child becomes more animated.

The effect of a skilfully-administered bath in the condition of nerve-prostration incident, in many children, to acute summer diarrhea must be observed to be fully appreciated. In my experience it has been an inestimable boon, affording hope and comfort under the most trying and desperate conditions. My mind still retains vivid recollections of the days when I was a student and of the early years of my practice, when the condition of profound adynamia, usually associated with hyperpyrexia, was called spurious hydrocephalus, and the cases were allowed

to die under blisters to the nucha and small doses of calomel. These cases do not now come under my observation; they are forestalled by the bath and by more rational treatment, foremost in which is judicious gastro-intestinal irrigation.

When there is objection or prejudice to tub-bathing, or when there is extreme jactitation, or when there are convulsions, the little patient may be placed in the wet pack, or the bath may be followed by the latter to maintain the calming effect. The wet pack is prepared by wringing out of water at a temperature of from  $50^{\circ}$  to  $60^{\circ}$  a linen sheet folded into a third of its usual size and smoothly laid (folded to suit the size of the child) upon a blanket. The child is snugly wrapped in the damp sheet (which may be made more wet if the temperature be high), so that the arms receive a fold to separate them from the body, and the legs a fold to separate them from each other. The blanket is now snugly tucked around the child, so as to completely envelop it, like a mummy, to prevent evaporation. This pack may be repeated two or three times, at intervals of ten minutes. The previously tossing child will usually drop into tranquil slumber, from which it should not be aroused. After the wet pack the body should always be rubbed with a linen cloth not quite wrung out of water at  $70^{\circ}$  F., and dried.

In the subacute form of summer diarrhea the chief condition indicating baths is the general depression of the system arising from the great drain upon the blood and nervous system. The pulse is usually rapid; the temperature ranges from  $99^{\circ}$  to  $101^{\circ}$ , with occasional exacerbations; the skin is inelastic;

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the face is sallow; in short, the symptoms are those of chronic adynamia, due to imperfect nutrition. To stimulate the appetite, improve the general nervous condition—in a word, to refresh the entire organism—should be our therapeutic endeavor. The most approved tonics and stimulants often fail, as Dr. Chapin has so graphically and poetically told us. In these cases general ablutions, morning and evening, are preferable to baths. The child is placed upon a soft woolen blanket; the abdomen, chest, and back are rapidly bathed, not sponged, as follows: From the hollow of the naked hand water at a temperature of  $75^{\circ}$  F. is poured upon the skin, which is then gently rubbed with the same hand. This is repeated until the entire body has been thus treated as far as the knees and elbows. The body is now rapidly dried by placing it upon a linen sheet, using friction with a rough towel if the temperature is below  $99.5^{\circ}$ , and only gentle mopping if it is above  $100^{\circ}$  F. If the temperature reaches  $102^{\circ}$ , a general bath is indicated, beginning with water at a temperature of  $95^{\circ}$ , which is gradually reduced by agitation and friction to  $85^{\circ}$ . Gentle drying follows.

The refreshing effect of these procedures has been so frequently observed that I do not hesitate to commend them to your adoption. There are many modifications of baths indicated by the various symptoms in summer diarrhea of infants. The time-limit precludes their description. Suffice it to say that no case should be regarded as intractable or too desperate until some form of hydriatic procedure (the adaptation of which to each case often requires more judgment than that of medicinal agents) has been tried.



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